Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for approximating a gradient, ~~the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^{\circ}$ where $\circ > 1$, the method~~ comprising:

receiving a gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by a non-linear function;

identifying an error tolerance;

selecting a starting point and a set point on a curve defined by the function;

defining a linear step from the start point to the set point;

calculating a maximum error between the linear step and the curve;

if the maximum error is less than or equal to the error tolerance,

approximating a portion of the gradient corresponding to the linear step with the linear step,

if the maximum error is more than the error tolerance,

selecting a new set point on the curve closer to the starting point and repeating the calculating step and error checking steps.

2. (Original) The method of claim 1, wherein the first set point selected is an end point of the curve.

3. (Original) The method of claim 1, wherein the new set point selected is half the distance between the set point and the starting point.

4. (Original) The method of claim 1, wherein the step of approximating the portion of the gradient includes

determining if the set point is an end point for the curve;

if the set point is not an end point for the curve, setting the set point as a new starting point and continuing the process including selecting a new set point;

else, ending the process and approximating the gradient using the defined linear steps.

5. (Original) The method of claim 1, wherein the new set point is selected using the calculated maximum error.

6. (Original) The method of claim 1, wherein the new set point is selected as being a point that corresponds to a linear step having a maximum error equal to the error tolerance.

7. (Currently Amended) A method for approximating a gradient, the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$, the method comprising:

identifying an error tolerance;

selecting a starting point and a set point on a curve defined by the function;

defining a linear step from the start point to the set point;

calculating a maximum error between the linear step and the curve;

if the maximum error is equal to the error tolerance,

approximating a portion of the gradient corresponding to the linear step with the linear step,

~~[The method of claim 1, further comprising~~

if the maximum error is less than the error tolerance,

before approximating a portion of the gradient, continuing to select new set points on the curve beyond the first set point and repeating the calculating step until the maximum error associated with a new set point is equal to the error tolerance or the new set point is an ending point on the curve,

then approximating a portion of the gradient corresponding to the linear step with the linear step; and

if the maximum error is more than the error tolerance,

selecting a new set point on the curve closer to the starting point and repeating the

calculating step and error checking steps.

8. (Previously Presented) A method for approximating a gradient, the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$, the method comprising:

identifying an error tolerance;

selecting a starting point and a set point on a curve defined by the function;

defining a linear step from the start point to the set point;

calculating a maximum error between the linear step and the curve;

if the maximum error is less than or equal to the error tolerance,

approximating a portion of the gradient corresponding to the linear step with the linear step,

if the maximum error is more than the error tolerance,

selecting a new set point on the curve closer to the starting point, repeating the calculating step, and approximating a portion in accordance with the error tolerance;

checking to determine if the set point is an end point of the curve, and

if not, approximating a second portion of the gradient including repeating the method with a previous set point as the starting point for a next approximation.

9. (Original) The method of claim 1, where the error tolerance is a visual tolerance.

10. (Original) The method of claim 1, further comprising using Newton's Method to select a set point on the curve to minimize the error between an approximation produced by the method and the curve.

11. (Currently Amended) A method for approximating a gradient, ~~the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^a$ where $e > 1$,~~ the method comprising:

receiving a gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the non-linear function;

identifying an error tolerance;

selecting an optimal number of set points on a curve defined by the function including determining each set point by evaluating a maximum error between a line defined by a pair of set points and a corresponding portion of the curve using the error tolerance; and

approximating the curve by a series of linear portions connecting the set points.

12. (Currently Amended) A method for approximating a gradient, ~~the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$,~~ the method comprising:

receiving a gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by a non-linear function;

identifying an error tolerance;

selecting an optimal number of linear stops on a curve defined by the function including

using Newton's Method to recursively sub-divide the curve to find a next linear portion that approximates a corresponding portion of the curve within the error tolerance where each linear portion is defined by two linear stops, and

locating subsequent linear stops until an end point of the curve is reached; and

approximating the curve by a series of linear portions connecting the linear stops.

13. (Currently Amended) A computer program stored on a tangible medium for approximating a gradient, ~~the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$,~~ the program including instructions to:

receive a gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by a non-linear function;

identify an error tolerance;

select a starting point and a set point on a curve defined by the function;

define a linear step from the start point to the set point;

calculate a maximum error between the linear step and the curve;

if the maximum error is less than or equal to the error tolerance,

approximate a portion of the gradient corresponding to the linear step with the linear step,

if the maximum error is more than the error tolerance,

select new set points on the curve closer to the starting point and repeat the calculating step and error checking step.

14. (Currently Amended) A computer program stored on a tangible medium for approximating a gradient, ~~the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$,~~ the program including instructions to:

receive a gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by a non-linear function;

identify an error tolerance;

select an optimal number of set points on a curve defined by the function including determine each set point by evaluating a maximum error between a line defined by a pair of set points and a corresponding portion of the curve using the error tolerance; and

approximate the curve by a series of linear portions connecting the set points.

15. (Currently Amended) A computer program stored on a tangible medium for approximating a gradient, ~~the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$,~~ the program including instructions to:

receive a gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by a non-linear function;

identify an error tolerance;

select an optimal number of linear stops on a curve defined by the function including

use Newton's Method to recursively sub-divide the curve to find a next linear portion that approximates a corresponding portion of the curve within the error tolerance where each linear portion is defined by two linear stops, and

locate subsequent linear stops until an end point of the curve is reached; and

approximate the curve by a series of linear portions connecting the linear stops.

16. (Previously Presented) A method for approximating a gradient, the gradient defining a

nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$, the method comprising:

identifying an error tolerance;

selecting a starting point and a first set point on a curve defined by the function;

defining a linear step from the start point to the set point;

calculating a maximum error between the linear step and the curve;

if the maximum error is equal to the error tolerance,

approximating a portion of the gradient corresponding to the linear step with the linear step,

if the maximum error is less than the error tolerance, before approximating a portion of the gradient, continuing to select new set points on the curve beyond the first set point and repeating the calculating step until the maximum error associated with a new set point is equal to the error tolerance or the new set point is an ending point on the curve,

then approximating a portion of the gradient corresponding to the linear step with the linear step.

17. (Previously Presented) The method of claim 16 further comprising:

if the maximum error is more than the error tolerance,

selecting a new set point on the curve closer to the starting point,

repeating the calculating step,

checking the error against the error tolerance, and

performing the approximating step in accordance with the error checking step.

18. (Previously Presented) A method for approximating a gradient, the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$, the method comprising:

identifying an error tolerance;

selecting a starting point and a set point on a curve defined by the function;

defining a linear step from the start point to the set point;

calculating a maximum error between the linear step and the curve;

if the maximum error is less than the error tolerance, continuing to select new set points on the curve beyond the first set point and repeating the calculating step until the maximum error associated with a new set point is equal to the error tolerance or the new set point is an ending point on the curve,

then approximating a portion of the gradient corresponding to the linear step with the linear step.

19. (Previously Presented) The method of claim 18 further comprising:

if the maximum error is more than the error tolerance,

selecting a new set point on the curve closer to the starting point,

repeating the calculating step,

checking the error against the error tolerance, and

performing the approximating step in accordance with the error checking step.

20. (Previously Presented) A method for approximating a gradient, the gradient defining a nonlinear transition from one color or gray level to another in an image where the rate of transition is determined by the function $y = x^e$ where $e > 1$, the method comprising:

identifying an error tolerance;

selecting a starting point and a set point on a curve defined by the function;

defining a linear step from the start point to the set point;

calculating a maximum error between the linear step and the curve;

if the maximum error is equal to the error tolerance, approximating a portion of the gradient corresponding to the linear step;

if the maximum error is more than or less than the error tolerance, continuing to select new set points on the curve either nearer to the starting point or beyond the first set point and repeating the calculating step until the maximum error associated with a new set point is equal to the error tolerance or the new set point is an ending point on the curve,

then approximating a portion of the gradient corresponding to the linear step with the linear step.